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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/085,548	02/27/2002	Takahiro Unno	TI-32337	9846
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TEXAS INSTRUMENTS INCORPORATED P O BOX 655474, M/S 3999 DALLAS, TX 75265			EXAMINER SHORTLEDGE, THOMAS E	
			ART UNIT 2654	PAPER NUMBER
DATE MAILED: 10/04/2005				

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/085,548

Applicant(s)

UNNO, TAKAHIRO

Examiner

Thomas E. Shortledge

Art Unit

2654

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 7/22/05.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 3,4 and 6 is/are allowed.
- 6) ☐ Claim(s) 1,2 and 5 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 February 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This communication is in response to Remarks/Arguments received 07/22/2005.
2. Claims 1-6 are pending. Claims 1, 3, 5, and 6 are independent.

Response to Arguments

3. Applicant's arguments, see Remarks/Arguments, filed 07/22/2005, with respect to claims 3, 4, and 6 have been fully considered and are persuasive. The 103(a) rejection of claims 3, 4, and 6 has been withdrawn.

4. Applicant's arguments filed 07/22/2005 have been fully considered but they are not persuasive. The applicant argued that Husain et al. (Classification and Spectral Extrapolation Based Packet Reconstruction for Low-Delay Speech Coding) do not teach a periodicity classification with at least three classes, as the transition class cannot be deduced from prior frames simply because it is a transition, and must know the actual classification of the erased frame. However, Husain et al. teaches three other classifications for the prior frame voiced, unvoiced and silence (page 848, col. 2). The applicant further argues that Husain et al. do not use a set of linear combinations of adaptive codebook and fixed codebook contributions for the excitation of erased transition frames and there is no suggestion of an excitation for all three classes as linear combinations of adaptive and fixed codebook contributions. However, the

examiner agrees that Husain et al. was only relied on to teach the missing element of Shoham, that element being more than three classifications, and Shoham teaches the rest of claims 1, 2 and 5 as can be seen in the rejections below.

5. The applicant also argued (Remarks, page 7) that within the obviousness-type double patenting rejection of claim 1 over US Patent 6,826,527 it would not be obvious to drop the periodicity classification of application claim 1 and subbing in the muting of claim 1 of US Patent 6,826,527 would make the claims identical. However, the examiner argues that it would be obvious to drop the periodicity classification of application claim 1 and sub in the muting of claim 1 of US Patent 6,826,527, since the periodicity classification of the frame would first need to be found before the muting process is carried out (col. 2, lines 46-63).

Double Patenting

6. Claim 1 is rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 1 of U.S. Patent No. 6,826,527. Although the conflicting claims are not identical, they are not patentably distinct from each other because by dropping the periodicity classification of claim 1 within the application and then subbing in the well known standard muting for error concealment of claim 1 of Patent 6,826,527, the claims would then read the same.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 1,2, and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shoham (5,699,485), in view of Husain et al. (Classification and Spectral Extrapolation Based Packet Reconstruction for Low-Delay Speech Coding).

As to claim 1, Shoham teaches:

(a) forming an excitation for an erased interval of encoded code-excited linear prediction signals by a weighted sum of (i) an adaptive codebook contribution and (ii) a fixed codebook contribution (an excitation signal synthesis during frame erasure, with a decoder including both an adaptive codebook portion and a fixed codebook portion (col. 4, lines 49-55), where the output of each is supplied to a summer (col. 4, lines 64-65, and col. 5, lines 40-41), where the summer generates an excitation signal, (col. 5, lines 49-51)), wherein said adaptive codebook contribution derives from an excitation and pitch and first gain of one or more intervals prior to said erased interval, (the erased frame is based on the previous frame, where the adaptive codebook contribution is the

pitch and gain is also based on the previous sample, col. 6, lines 33-35, and 44-46), and said fixed codebook contribution derives from a second gain of at least one of said prior intervals, (the fixed codebook gain is synthesized based on previous frames, col. 7, lines 23-27);

(b) wherein said weighted sum has sets of weights depending upon a periodicity classification of at least one prior interval of encoded signals, (an indication of periodicity for the erased frame is obtained from the previous frame, (col.6 lines 7-10), where the classification leads to a different summation for each classification, col. 6, line 15, through col. 7, line 34);

(c) filter said excitation (filter the excitation through a synthesis filter, col. 11, lines 27-28).

Shoham does not teach the periodicity classification with at least three classes.

However, Husain et al. teach four classifications, page 848, col. 2.

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the process of forming the excitation for an erased interval of Shoham with the three or more speech classifications of Husain et al. to lower the degradation of a signal with missing packets, as taught by Husain et al. (page 848, col. 1).

As to claim 2, Shoham teaches said filter includes a synthesis with synthesis filter coefficients derived from filter coefficients of said intervals prior in time, (upon the

occurrence of a frame erasure, the coefficients stored in memory are supplied to the synthesis filter, col. 7, lines 45-47).

As to claim 5, Shoham teaches:

- (a) a fixed codebook vector decoder, (col. 4, lines 49-51);
- (b) a fixed codebook gain decoder, (col. 4, lines 56-60);
- (c) an adaptive codebook gain decoder, (col. 4, lines 52-53);
- (d) an adaptive codebook pitch delay decoder (col. 4, lines 51-53);
- (e) an excitation generator coupled to said decoders, (col. 5, line 49); and
- (f) a synthesis filter, (col. 5, line 55);

(g) wherein when a received frame is erased, said decoders generate substitute outputs (the fixed codebook and adaptive codebook send signals to summer, col. 5, lines 55-56), said excitation generator generates a substitute excitation, (generate an excitation signal, col. 5, line 55), said synthesis filter generates substitute filter coefficients, (the coefficients stored in memory are supplied to the synthesis filter, col. 7, lines 45-47), and said excitation generator uses a weighted sum of (i) an adaptive codebook contribution and (ii) a fixed codebook contribution with said weighted sum uses sets of weights depending upon a periodicity classification of at least one prior frame, (a summer combines the outputs from each of the codebook decoders, having coefficients, generating an excitation signal, where the generation of the excitation signal is based on the classification of the previous frame, (col. 5, lines 49-54, and col.

6, lines 7-10). The weights applied to the coefficients are representative of the periodicity classification of the previous frame, (col. 6, lines 12-14, 15-17, and 52-55)).

Shoham does not teach the periodicity classification with at least three classes.

However, Husain et al. teach four classifications, page 848, col. 2.

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the process of forming the excitation for an erased interval of Shoham with the three or more speech classifications of Husain et al. to lower the degradation of a signal with missing packets, as taught by Husain et al. (page 848, col. 1).

Allowable Subject Matter

9. Claims 3, 4 and 6 are allowed.

10. The following is an examiner's statement of reasons for allowance: The prior art of record teaches the reconstruction of erased intervals using interpolation techniques within a CELP decoder. The decoder comprising of a fixed codebook vector decoder, a fixed codebook gain decoder, an adaptive codebook gain decoder, an adaptive codebook pitch delay decoder, and excitation generator coupled to said decoders and a synthesis filter. However the prior art does not teach nor fairly suggest that after the reconstruction of an erased interval, it is used to recompute the excitation for the already-preliminarily decoded subsequent interval.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Claim 4 would be allowable since it is dependent on claim 3.

Conclusion

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. See PTO-892.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thomas E. Shortledge whose telephone number is (571)272-7612. The examiner can normally be reached on M-F 8:00 - 4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richemond Dorvil can be reached on (571)272-7602. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2654

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

TS
9/26/05



RICHEMOND DORVIL
SUPERVISORY PATENT EXAMINER